



AFCTN Report 94-118

AFCTB-ID
94-120



Technical Raster Transfer Using:

Rockwell International's Rocketdyne
Division Data



Supporting:

HQ AFMC/ENCT's CALS
Evaluation and Integration Office



MIL-STD-1840A & MIL-STD-1840B



MIL-R-28002A (Raster)

Quick Short Test Report

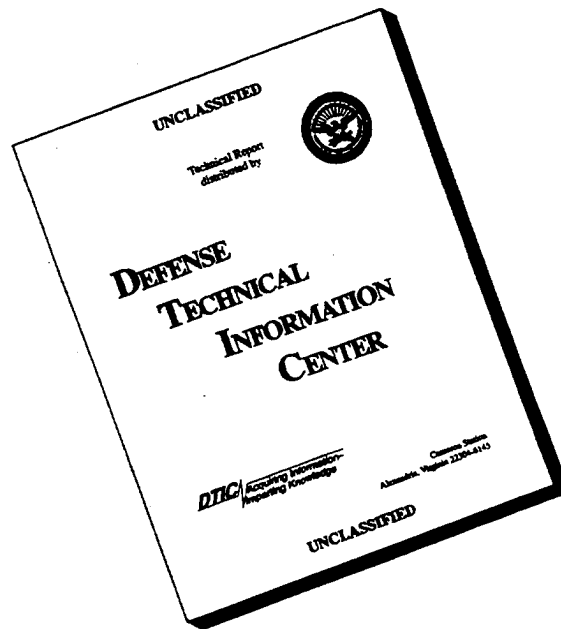
14 September 1994



Prepared for
Electronic Systems Center
Air Force CALS Program Office
HQ ESC/AV-2
4027 Colonel Glenn Hwy Suite 300
Dayton OH 45431-1672

19960606 125

DISCLAIMER NOTICE



**THIS DOCUMENT IS BEST
QUALITY AVAILABLE. THE
COPY FURNISHED TO DTIC
CONTAINED A SIGNIFICANT
NUMBER OF PAGES WHICH DO
NOT REPRODUCE LEGIBLY.**

Technical Raster Transfer

Using:

Rockwell International's Rocketdyne Division Data

Supporting:

HQ AFMC/ENCT's CALS Evaluation and Integration Office

MIL-STD-1840A & MIL-STD-1840B

MIL-R-28002A (Raster)

Quick Short Test Report

14 September 1994

Prepared By

Air Force CALS Test Bed
Wright-Patterson AFB, OH 45433

AFCTB Contact

Gary Lammers
(513) 427-2295

AFCTN Contact

Mel Lammers
(513) 427-2295

DISCLAIMER

This document was prepared as an account of the work sponsored by the Air Force. Neither the United States Government, the Air Force, nor any of their employees makes any warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, nor represents that its use would not infringe on privately owned rights. Reference herein to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or the Air Force. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or the Air Force, and shall not be used for advertising or product endorsement purposes.

Available to the public from the
National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161

This report and those involved in its preparation do not endorse any product, process, or company stated herein. Use of these means by anyone does not imply certification by the Air Force CALS Test Network (AFCTN).

Air Force CALS Test Bed

Notification of Test Results

14 September 1994

This notice documents the results of an Air Force CALS Test Bed (AFCTB) Quick Short Test Report (QSTR) evaluation of data submitted by:

Rockwell International's Rocketdyne Division

Identified as follows:

Title:	Technical Raster Transfer
Program:	CALS Evaluation & Integration Office
Program Office:	HQ AFMC/ENCT
Contract No.:	N/A
QSTR No.:	AFCTB-ID 94-120

Received on the following media: **Electronic Transfer**

The results of the QSTR evaluation are as follows:

MIL-STD-1840A & 1840B	Pass
Standard:	
MIL-STD-1840A & 1840B	Pass
Media Format:	
MIL-D-28000A IGES:	N/A
MIL-M-28001B SGML:	N/A
MIL-R-28002A Raster:	Pass
MIL-D-28003 CGM:	N/A

Formal results with associated disclaimer are documented and available from the AFCTB.

**Air Force CALS Test Bed
HQ ESC/AV-2P
4027 Colonel Glenn Highway, Suite 300
Dayton, OH 45431-1672
Phone: 513-257-3085 FAX: 513-257-5881**

Contents

1.	Introduction.....	1
1.1.	Background.....	1
1.2.	Purpose.....	2
2.	Test Parameters.....	3
3.	1840A & 1840B Analysis.....	5
3.1.	External Packaging.....	5
3.2.	Transmission Envelope.....	5
3.2.1.	Tape Formats.....	5
3.2.2.	Declaration and Header Fields.....	5
4.	IGES Analysis.....	5
5.	SGML Analysis.....	5
6.	Raster Analysis.....	6
7.	CGM Analysis.....	7
8.	Conclusions and Recommendations.....	8
9.	Appendix A - Tapetool Report Logs.....	9
9.1.	MIL-STD-1840A Data Set.....	9
9.1.1.	Tape Catalog.....	9
9.1.2.	Tape File Set Validation Log.....	10
9.2.	MIL-STD-1840B Data Set.....	12
9.2.1.	Tape Catalog.....	12
9.2.2.	Tape File Set Validation Log.....	13

10.	Appendix B - Detailed Raster Analysis.....	15
10.1.	File D001R001.....	15
10.1.1.	Output IGESView.....	15
10.2.	File D001R002.....	16
10.2.1.	Output IGESView.....	16

1. Introduction

1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840B, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze Rocketdyne's (a division of Rockwell Int'l) interpretation and use of the CALS standards in transferring technical Raster data. Rocketdyne used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff using and electronic transfer to the internet server.

Two file sets were transmitted for this test, an 1840A and an 1840B data set.

2. Test Parameters

Test Plan: AFCTB 94-120

Date of Evaluation: 14 September 1994

Evaluator: George Elwood
Air Force CALS Test Bed
DET 2 HQ ESC/AV-2P
4027 Colonel Glenn Hwy
Suite 300
Dayton OH 45431-1672

Data Originator: Betty Boyadjian
Rocketdyne Division, Rockwell International
6633 Canoga Ave M/S AB41
Canoga Park, CA 91304
(818) 586-4934

Data Description: Technical Raster Test (2)
1 Document Declaration file
2 Raster files

Data Source System: 1840

HARDWARE SUN

SOFTWARE AFCTN Tapetool 2.0B
AFCTN Tapetool 1.2.10

Raster

HARDWARE SUN

SOFTWARE SPICER IMAGEnation VME

Evaluation Tools Used:

MIL-STD-1840B (TAPE)

PC 486/50

AFCTN Tapetool v1.2.10 DOS

AFCTN Tapetool v2.0.0 (1840B)

MIL-R-28002 (Raster)

HP 735

AFCTN xrastb.hp

InterCAP X-Change v7.82

Carberry CADLeaf v4.0

SGI Indigo2

AFCTN xrastb.sgi

IGES Data Analysis (IDA) CALSView

SUN SparcStation 2

IDA IGESView v3.0

PC 486

AFCTN validg4

IDA IGESView Windows

Inset Systems HiJaak Pro

Expert Graphics RxHighlight v1.0

Standards

Tested:

MIL-STD-1840A

MIL-STD-1840B

MIL-R-28002A

3. 1840A & 1840B Analysis

3.1 External Packaging

The files arrived at the Air Force CALS Test Bed (AFCTB) via an electronic transfer to the internet server. No physical media was exchanged or evaluated.

3.2 Transmission Envelope

The electronic transfer received by the AFCTB contained MIL-STD-1840A and MIL-STD-1840B files. The files were named per the standard conventions.

3.2.1 Tape Formats

No tape was evaluated.

3.2.2 Declaration and Header Fields

No errors were found in the Document Declaration file or data file headers of either file set. This portion of the electronic transfer meets the requirements defined in CALS MIL-STD-1840A and MIL-STD-1840B.

4. IGES Analysis

No Initial Graphics Exchange Specification (IGES) files were included in this evaluation.

5. SGML Analysis

No Standard Generalized Markup Language (SGML) files were included in this evaluation.

6. Raster Analysis

Each transfer set contained two Raster files from a MIL-STD-1840A and MIL-STD-1840B data package. The Raster files were compared and found to be exact matches. The Raster evaluation was done using the MIL-STD-1840A data files.

The procedure used to create these files at Rocketdyne was as follows:

Original engineering drawing created using CATIA. These files were then scanned at 300 DPI. File D001R001 is an "E" size drawing while D001R002 is an "A" size drawing. The 1840A output was generated using the AFCTB Tapetool v1.2.10. The 1840B output was generated using the AFCTN Tapetool v2.0.0. The 1840B header contained additional fields, which are not currently supported by the AFCTB Raster test tools; *xrastb* and *validg4*. All evaluations of the Raster files were done using the MIL-STD-1840A data set.

The 1840A files were read into the AFCTN *xrastb.sgi* viewing utility. No problems were encountered. It was noted that the decompressed file size of D001R001 was over 15 megabytes. Files this large may cause problems in some systems with limited memory. The image quality was excellent. All text could be read. The SUN Sparc version of the software would not display the image due to lack of memory.

The AFCTB has several tools for viewing Raster files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

The Raster files were read into Carberry's *CADLeaf* software without a reported error. In order to make the images acceptable, only a small section of the images could be displayed.

According to R. Bryan DiAntonio of Carberry, "We worked with these files and all images were displayed without a reported error."

The files were read using IDA's *CALSVIEW* without a reported error.

The files were read into IDA's *IGESVIEW* without a reported error. The files were printed from this utility. The files were read into Inset Systems' *HiJaak for Windows*. Because of the size of the files and available memory on the PC, error messages were displayed indicating a lack of memory to process the files.

No errors were reported while using InterCAP's *X-Change*. The images appeared correctly. The text size was very small, making it necessary to use the zoom function in order to view it.

The Raster files were imported into Expert Graphics' *Rx-Highlight* and displayed without any reported errors. The images were enlarged and all text was legible.

The two Raster files in these transfer sets meet the CALS MIL-R-28002A specification.

7. CGM Analysis

No Computer Graphics Metafiles (CGMs) were included in this evaluation.

8. Conclusions and Recommendations

The CALS Document Declaration file and data file headers were correct. This portion of the electronic transfers meets the CALS MIL-STD-1840A and MIL-STD-1840B requirements.

The Raster files meet the CALS MIL-R-28002A specification.

The electronic transfer sets submitted by Rocketdyne conform to the CALS MIL-STD-1840A and MIL-STD-1840B requirements.

9. Appendix A - Tapetool Report Logs

9.1 MIL-STD-1840A Data Set

9.1.1 Tape Catalog

CALS Test Network Catalog Evaluation - Version 1.2; Release 10 (O)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information

ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes
for Information Interchange

ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Wed Sep 14 11:17:09 1994

MIL-STD-1840A File Catalog

File Set Directory: C:\TT\SET012

Page: 1

File Name	File Type	Record		Selected/ Extracted
		Format/ Length	Block Length/Total	
D001	Document Declaration	D/00256	02048/000000	Extracted
D001R001	Raster	F/00128	02048/000000	Extracted
D001R002	Raster	F/00128	02048/000000	Extracted

Catalog Process terminated normally.

9.1.2 Tape File Set Validation Log

CALS Test Network File Set Evaluation - Version 1.2; Release 10 (O)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Wed Sep 14 11:17:10 1994

MIL-STD-1840A File Set Evaluation Log

File Set: SET012

Found file: D001

Extracting Document Declaration Header Records...

Evaluating Document Declaration Header Records...

srcsys: Rocketdyne Div, Rockwell Intl, 6633 Canoga Ave, Canoga Park, CA 91303

srcdocid: Engineering Drawing #R046284

srcrelid: NONE

chglvl: ORIGINAL

dteisu: 19940908

dstsys: CALS Evaluation and Integration Office, %CALS Digital Standards Office, HQ
AFMC/ENCT, Wright-Patterson AFB, OH 45433-50

dstdocid: Engineering Drawing #R046284

dstrelid: NONE

dtetrn: 19940908

dlvacc: NONE

filcnt: R2

ttlcls: UNCLASSIFIED

doccls: UNCLASSIFIED

doctyp: Product Data

docttl: Casting, Outlet Elbow, Enhanced MCC

Found file: D001R001

Extracting Raster Header Records...

Evaluating Raster Header Records...

srcdocid: Engineering Drawing #R046284

dstdocid: Engineering Drawing #R046284

txtfilid: NONE

figid: NONE

srcgph: NONE

doccls: UNCLASSIFIED

rtype: 1

rorient: 000,270

rpelcnt: 010672,015736

rdensty: 0300

notes: NONE

Saving Raster Header File: D001R001.HDR
Saving Raster Data File: D001R001.GR4

Found file: D001R002
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: Engineering Drawing #R046284
dstdocid: Engineering Drawing #R046284
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: UNCLASSIFIED
rtype: 1
rorient: 000,270
rpelcnt: 002551,003301
rdensty: 0300
notes: NONE

Saving Raster Header File: D001R002.HDR
Saving Raster Data File: D001R002.GR4

Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

Checking file count...
No errors were encountered during file count verification.
File Count verification complete.

No errors were encountered in Document D001.

No errors were encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.

9.2 MIL-STD-1840B Data Set

9.2.1 Tape Catalog

CALS Test Network Catalog Evaluation - Version 2.0; Release 1 (C)

Standards referenced:

MIL-STD-1840B (1992) - Automated Interchange of Technical Information

ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes
for Information Interchange

ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Wed Sep 14 12:31:06 1994

MIL-STD-1840B File Catalog

File Set Directory: C:\TAPEB\SET004

Page: 1

File Name	File Type	Record	Block	Selected/ Extracted
		Format/ Length	Length/Total	
D001	Document Declaration	F/00128	02048/000000	Extracted
D001R001	Raster	F/00128	02048/000000	Extracted
D001R002	Raster	F/00128	02048/000000	Extracted

Catalog Process terminated normally.

9.2.2 Tape File Set Validation Log

CALS Test Network File Set Evaluation - Version 2.0; Release 1 (C)

Standards referenced:

MIL-STD-1840B (1992) - Automated Interchange of Technical Information

Wed Sep 14 12:31:06 1994

MIL-STD-1840B File Set Evaluation Log

File Set: SET004

Found file: D001

Extracting Document Declaration Header Records...

Evaluating Document Declaration Header Records...

version: MIL-STD-1840B, 0, 19921103

srcsys: Rocketdyne Div, Rockwell Intl, 6633 Canoga Ave, Canoga Park, CA 91303

srcdocid: Engineering Drawing #R046284

srcrelid: NONE

chglvl: ORIGINAL, 0, 0, 19940908/1033:17

dteisu: 19940908/1033:17

dstsys: CALS Evaluation and Integration Office, %CALS Digital Standards Office, HQ

AFMC/ENCT, Wright-Patterson AFB, OH 45433-50

dstdocid: Engineering Drawing #R046284

dstrelid: NONE

dtetrn: 19940908/1033:17

dlvacc: NONE

filcnt: R2

ttlcls: UNCLASSIFIED

doccls: UNCLASSIFIED

doctyp: CATIA Drawings, scanned on E and A size scanners

doctl: Catring, Outlet Elbow, Enhanced MCC

transacttyp: PRODUCT DATA

Found file: D001R001

Extracting Raster Header Records...

Evaluating Raster Header Records...

specversion: NONE

srcdocid: Engineering Drawing #R046284

dstdocid: Engineering Drawing #R046284

moduleid: NONE

dtype: 1

rorient: 000,270

rpelcnt: 010672,015736

rdensty: 0300
didid: NONE
doccls: UNCLASSIFIED
notes: E-size scanned image, 300 dpi

Found file: D001R002
Extracting Raster Header Records...
Evaluating Raster Header Records...

specversion: NONE
srcdocid: Engineering Drawing #R046284
dstdocid: Engineering Drawing #R046284
moduleid: NONE
dtype: 1
rorient: 000,270
rpelcnt: 002551,003301
rdensty: 0300
didid: NONE
doccls: UNCLASSIFIED
notes: A-size scanned image, 300 dpi

Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

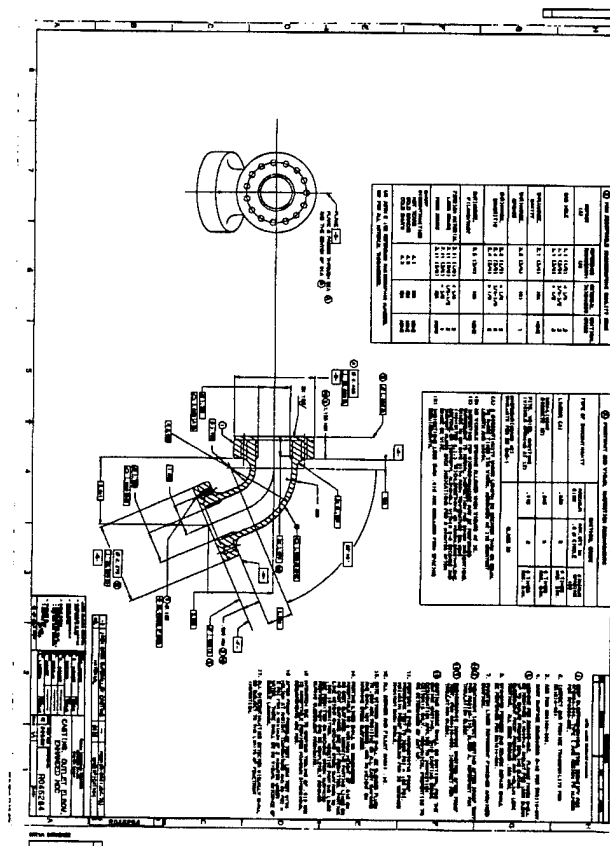
Checking file count...
No errors were encountered during file count verification.
File Count verification complete.

No errors were encountered in Document D001.

No errors were encountered in this File Set.

MIL-STD-1840B File Set Evaluation Complete.

10.1.1 Output IGESView



10.2 File D001R002

10.2.1 Output IGESView

FIGURE 1 JUL 25, 1994 15:41:20

